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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,157	03/13/2006	Gilad Almogy	6317P003	7462

57605 7590 06/23/2010
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EXAMINER

SAKELARIS, SALLY A

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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06/23/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Pre-Appeal Review

The Pre-Appeal Review request filed 4/2/2010 has been received and a conference has been convened. Finality as asserted in the previous office action mailed 1/5/2010 has been withdrawn and a non-final action is contained herein. Claims 32, 33, and 37-44 have been cancelled, claims 1-25 are withdrawn and claims 26-31 and 34-36 have been amended and remain pending.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 26-28, 30, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. (US 6271671) in view of Alumot et al. (US 5,699,447).

With regard to claims 26 and 28, in Figure 2 Charles disclose a system for defect localization, comprising: means for providing an electrical signal (40) **having multiple phases** (Col. 4 lines 30-35) to at least one conductor (Figure 3 (66)) of a test structure (30); wherein the test structure comprises at least the conductor and electro-optically active material (60, 64, 62) that is positioned such as to provide an indication about the electrical status of the at least one conductor (66); means for illuminating the electro-optically active material of the test structure (Fig. 2 (32)); at least one detector (46), capable of detecting light scattered or reflected from the electro-optically active material of the test structure; and a processor (lock in amplifier (48)) for processing detection signals from the detectors to locate a defect. (Col. 7 lines 31-41).

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Regarding the signal generator (40) and its capability of providing a signal having multiple phases (i.e., "phases" as exemplified by applicant on Page 13 of their specification) and their teaching generally of electrifying their substrate (Col. 4 lines 12-57), the applicant is reminded that in light of the intended use terms of this claim, the Examiner will interpret these claims in light of the structural elements that are disclosed and not for their intended use as stated after the term "for." The term, "for," is an intended use term. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Exparte Masham*, 2 USPQ2d 1647 (1987). The Examiner has applied references, which are capable of meeting these functions. A structure, which is capable of providing the intended use, is considered to meet the limitation of intended use recited in a claim to a device or an apparatus.

With regard to claim 27, Charles et al. teach the means for illuminating illuminates the test structure with polarized light via Figure 2's disclosure of a polarizer (34).

With regard to claim 30, Charles et al. teach that the electrical signal is 3 volts (i.e. about 5 volts) (Col. 6 line 29).

Applicant should note that regarding claims 34 and 36, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

With regard to claims 26, 34, and 36, Charles teaches that the processor (48) is adapted to process the location of the defect (Col. 7 lines 31-41).

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Charles et al. does not teach the device that is adapted to acquire images or process those images as recited in claims 26, 34 and 36.

Alumot et al. teach an apparatus for inspecting the surface of chips and wafers for defects also including a first and second phase (i.e., multiple phases) of scanning the incident substrate with a laser (Abstract). The reference teaches camera (110), and multiple image processors (1st (7) and 2nd (11)) in Figure 1 for optically examining with a relatively high spatial resolution the suspected locations for the presence or absence of a defect therein. In light of the intended use recited in this claim, Alumot is therefore interpreted as teaching a processor capable of generating images and processing images as is claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles alongside the optical detection components of Alumot et al. as the Alumot system provides a method and components for inspecting semiconductor wafers at relatively high speeds and with a relatively low false alarm rate avoiding losses and production downtime and increasing overall yields (Col. 1 lines 38-50).

2. Claims 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. in view of Alumot et al. (US 5,699,447) and in further view of the product description of a lock in amplifier (Perkin Elmer Technical note, 2000).

With regard to claims 29 and 31, Charles et al. teaches the use of a “Lock in amplifier” (48) in their device wherein the electrical signal is either an AC or DC currents.

Charles et al. nor Alumot teach the exact specifications and capabilities of their lock-in amplifier (48) within the reference.

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With regard to claims 29 and 31, the product manual entitled: "What is a Lock-in Amplifier" teaches that a lock-in amplifier, in common with most AC indicating instruments, provides a DC output proportional to the AC signal under investigation, thus disclosing an electrical signal that is both an AC and DC current (Pg.1 left hand side).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles in view of Alumot with the lock-in amplifier of Perkin Elmer as the component's "inherent tracking ability allows extremely small bandwidths to be defined for the purpose of signal-to-noise ratio improvement since there is no frequency 'drift' as is the case with analog 'tuned filter/rectifier' systems." (Perkin Elmer, Pg.1 lower left side).

3. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. in view of Alumot et al. and in further view of EG&G Princeton applied research product description ("Explore the Lock-in Amplifier, 1983).

The teachings of Charles in view of the Alumot et al. can be seen above.

The pair of references does not teach the particular technical specifications of their lock-in amplifier device that can operate with a frequency range of between 1-100 Hz.

The EG&G product description teaches that a lock-in amplifier has a frequency range limited to 0.1Hz to 200kHz, thus disclosing the 1-100Hz as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles in view of Alumot et al. with the lock-in amplifier taught within the EG&G product manual since it has a low frequency range enabling a broader

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range of detection. Further the reference teaches that it can measure weak distortion components in the presence of obscuring background noise and directly measure the distortion of a linear system without concern for the spectral purity of the excitation sources which would greatly improve the quality and efficiency of the defect detecting device (EG&G Pg. 1 left side).

Response to Arguments

Applicant's arguments with respect to claims 26-31 and 34-36 have been considered but are moot in view of the above, new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sally A. Sakelaris whose telephone number is 5712726297. The examiner can normally be reached on Monday-Friday 8-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 5712721267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Sally A Sakelaris/

Examiner, Art Unit 1797